628

The DRILLER

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Wininger Bros., Morenci, Arizona, drill a large diameter 1500 ft. well in tough basalt.

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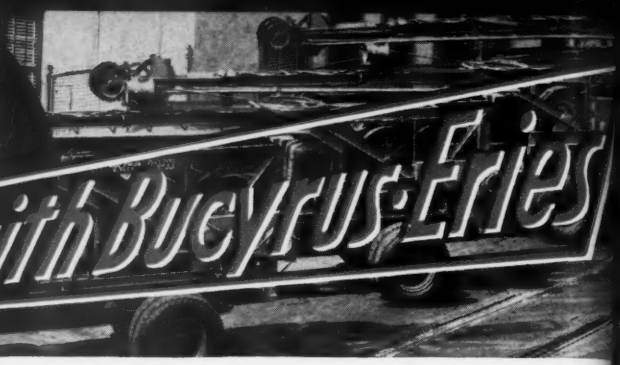
VOLUME 19 MARCH, 1945 NUMBER 3

LOOK AHEAD to Greater Profits with Bucyrus-Eries



Businessmen with foresight — men who are looking ahead and planning their postwar futures — are looking over equipment in their fields, picking out the units they'll need, choosing the machines that will bring the most in profitable returns.

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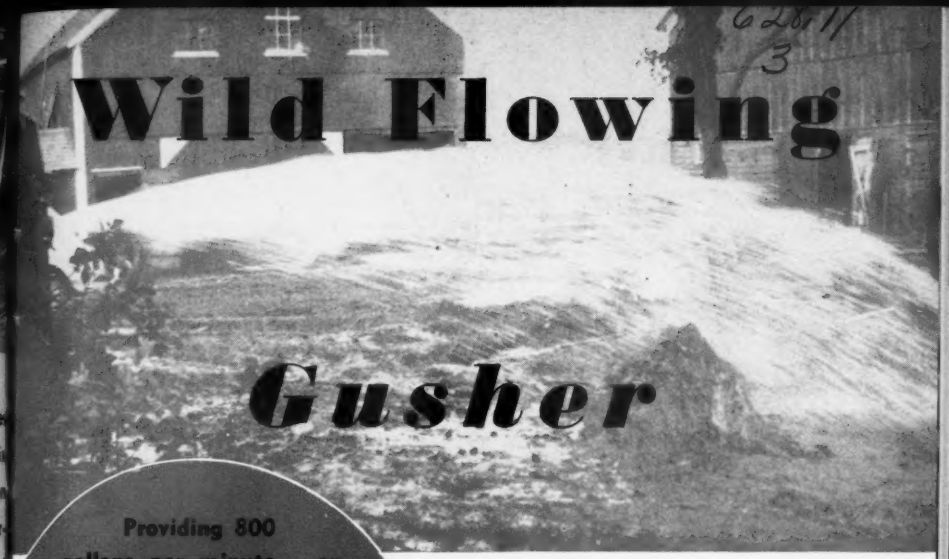
Wild Flowing Gusher



Providing 800 gallons per minute — or 1,152,000 gallons per day—a veritable "geyser" was brought in Wisconsin's Ben Karrels. Without benefit of pump, there's enough artesian pressure from this farm well to supply running water for the barn, the milk house, the two-story house — and then some!

THE usual thing in well drilling is to worry about getting enough water; it's not often that you have to be afraid of getting *too much!* But Driller Ben Karrels of Random Lake, Wisconsin, recently drilled a farm well that brought water in such astonishing quantities that for a while the flow threatened to undermine the house beside which it was drilled, and generally flooded the farmyard.

But let Ben tell the story:

"We had a contract to drill a well on the 80-acre farm of Clarence Bruckshen, located about three-and-a-half miles northeast of the village of Cleveland, Wisconsin.

"We started drilling the well in late June and finished it, seven days later, in the early part of July last year. We drilled 8-inch hole to 48 feet, then reduced to 6-inch, hitting a good water formation at 298 feet.

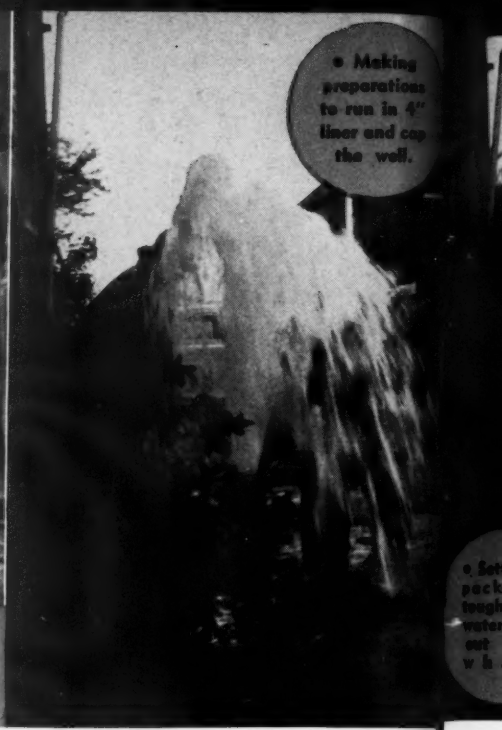
Mrs. Bruckshen wanted to snap a picture as soon as the tools were out of the hole, so she was ready with her camera as we pulled the tools.

"Just as the bit was removed, she snapped a picture, and much to everybody's surprise, water flowed out of the pipe at the same instant. (The picture she took is shown at the left on page 4.—Ed.)

"A flowing well isn't unusual in these parts, so at first she and her husband were pretty happy about it —and so were we. We moved out our rig because the job was done.

"But after we left, the well kept getting stronger and stronger and the water shot higher and higher, flooding the yard. Mr. Bruckshen, seeing this, called someone from the neighboring village to cap the well. He got the water stopped but, being inexperienced, failed to do it prop-

• This picture, snapped by Mrs. Clarence Bruckshen without knowledge of the prospect of a flowing well, shows the water first coming out of the well. Driller Walter Rettela watches.



erly. The result was that, although the pipe was capped, the water pressure was so great that it forced itself up around the outside of the casing and streamed out all over the landscape.

"The water again deluged the yard; it seeped through cracks in the basement wall of the house, flooding the cellar. Then the wall began to settle and the danger became great that the house would be undermined and its foundation collapse.

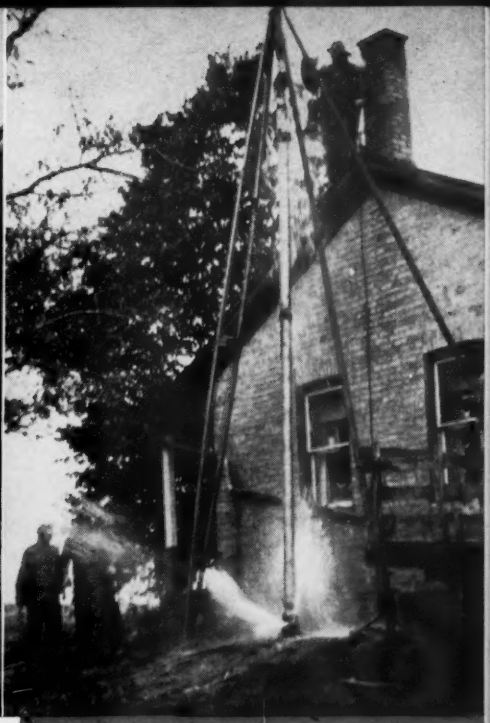
"Bruckshen, of course, was frantic so he immediately got in touch with me and asked me to cap the well. Walter Rettela, my son-in-law and assistant, and several of my other drillers hurried up there, and figured out a way to cap the well successfully.

"To do it we had to have a lot of four-inch pipe and that means several days' wait because we didn't have anywhere near enough on hand for the job. We got it soon, though, and then set to work—just about two weeks after the first attempt at capping had been made.

"We planned to set a 4-inch liner inside the 8- and 6-inch pipe, cementing it in rock. We knew we'd have to do it in an awful hurry if this plan was going to work. We set up a 28-foot tripod over the hole to handle and screw the lengths of pipe together. Then, wearing regular "firemen's" outfits borrowed from a nearby fire department to keep from getting soaked, we went to work—and the fur really flew. In 58 minutes, six of us set 240 feet of 4-inch liner pipe and a packer. The pipe was set 70 feet into rock and cemented in from top to bottom.

"While the pipe was being set, Rettela took up a position at the peak of the roof of the house, where he handled line for settling the pipe. As we set the pipe the water shot

• Setting the packer was tough job as water gushed out everywhere.



• A tripod was used to set the pipe and packer. Rettela standing on the roof, was almost blown off by the force of the water which shot higher than the house. Karrels is on the truck.

up over the tripod and almost blew Walter off the roof. Only the fact that the chimney offered him something to hold on to saved him.

"We did the job, though, and got the well capped; according to our calculations, the well flows 800 gpm if it flows a gallon!

"And if that sounds like a wild misstatement, just remember that the well is supplying running water under its own pressure for the drinking cups in the barn, for the milk house (where it's running constantly), and for the house, where it is piped both upstairs and down.

"The gauge we put on after capping showed 62 pounds of pressure. To show you what force the water had as it discharged, the Bruckshens picked up from their yard several baskets of strange stones that could only have come from the well.

"That well isn't dropping off any,

(Continued on page 18)

• Wearing fire outfits, Karrels and five other men set 240' of 4" pipe in 58 minutes!

Geophysical Logging
of Water Wells in Northeastern Illinois

By

CARL A. BAYS, Geologist and Engineer

and

STEWART H. FOLK, Associate Geologist,

Illinois State Geological Survey, Urbana, Illinois

WHERE considerable differences in hydrostatic head exist in the various aquifers of multi-zone wells, some zones may take or "thieve" water from the wells. By use of temperature logs, fluid-resistivity logs, and current-meter logs in conjunction with the electric log such thieving zones can be recognized. If the thieving zone is a creviced dolomite, as is frequently the case in Illinois wells, the caliper log also is helpful in locating it.

In the well illustrated in Fig. 5 large changes in fluid resistivity and temperature at the creviced zone indicated on the caliper log coincide with a major disturbance of the potential curve of such magnitude that it was necessary to introduce a manual shift to keep the record on scale in spite of the fact that full scale is 900 millivolts. The relations of the curves suggest that large volumes of water were leaving the hole through these crevices at the time of logging. When the head on such thieving zones is lower than the operating levels in the well it is desirable to shut off the zones and thus increase the yield.

Location of Casing and Liners

Location of casing and liners in a well and determination of their condition is an important problem. In Fig. 5 the impedance curve showed a liner from 938 to 997 feet and the irregularities in diameter measured by the caliper indicated it to be in very poor condition. For another well there was an old set of samples but no reliable record of the pipe, or hole diameter below the top. The length of casing and position of the top of a liner were determined from the impedance log, and the diameters of the casing and of the open hole were measured with the caliper. The hole was bridged across the liner at 740 feet so the log could not be run deeper. This well was being used as an observation well to record fluctuations in water levels as indicative of water resources of the important sandstone aquifer at about 1600 feet through which the well was reported to have been drilled. The geophysical survey, by indicating that the hole was bridged, showed that the water levels could reflect water conditions only in formations above 740 feet. In addition a hole in the surface string of casing was located by the caliper at a depth between 250 and 260 feet. As the well was logged during its period of highest water-level, and the top of the fluid, as indicated by the temperature and fluid-resistivity curves, so closely coincides with the hole in the casing, it appears that the water levels are controlled by the rate at which water

Editor's Note: *Material for this series is from a paper presented to the Western Society of Engineers and published in its Journal for September, 1944. These articles appear in THE DRILLER by special permission of the Western Society of Engineers and of the Illinois Geological Survey.*

This installment shows that the effects of shooting and the location of liners, thieving zones, lost objects, and zones in which electric currents are intense can be determined by geophysical logging.

can leave the well through the hole. It became apparent that this well was valueless as an observation well for water-level data.

Effects of Shooting

For better drilling and completion practice it has been worthwhile to analyze the effect of shooting sandstone zones in wells. 150-pound shots were used in different spots in a northern Illinois well (see Fig. 6) without knowing exactly where the producing water sands were. In the good water sands the diameter of the hole was enlarged from 12 inches to 32 inches but in the tight sands the maximum diameter was 20 inches.

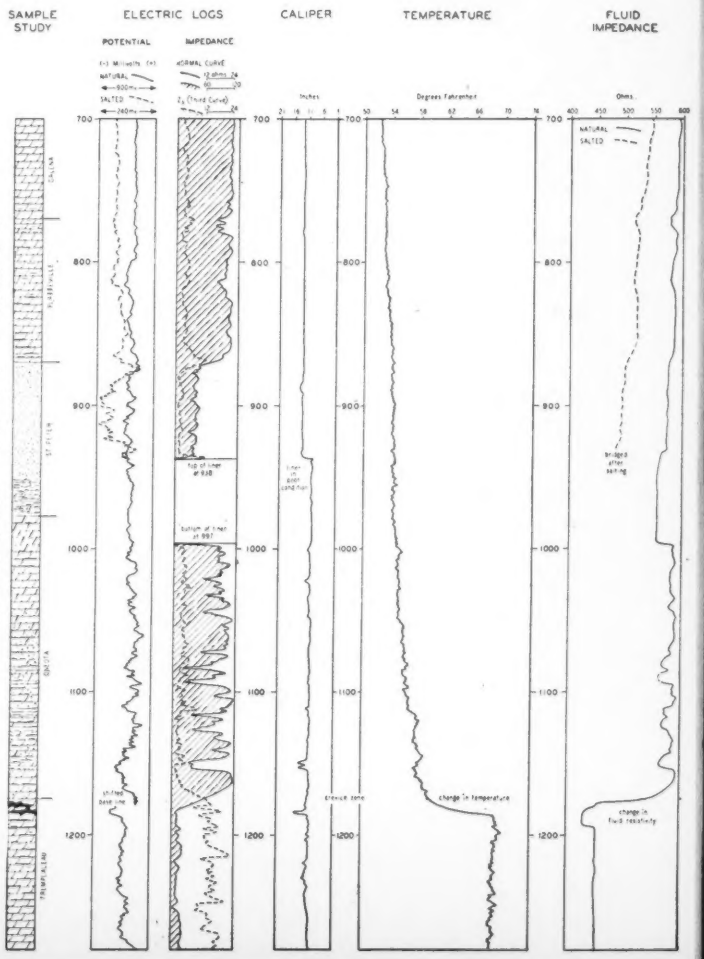


Figure 5—Losses of water by thieving and discovery of poorly conditioned liners were located by logging this well. Great changes in temperature and fluid resistivity at about 1200 feet indicated large loss of water through a crevice zone.

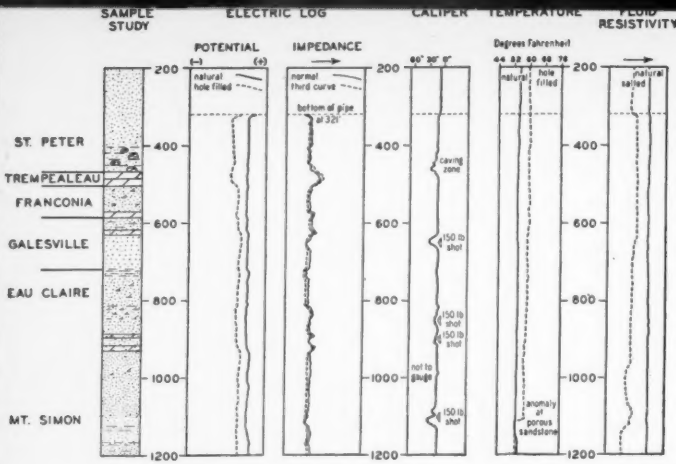


Figure 6—The effects of shooting 150-lb. shots at various depths are reflected on the electric log impedance curve and on the caliper curve.

Caliper logs are valuable aids to reworking old wells because they locate tight spots and zones of caving shales, conglomerate, or soft sandstones in the wells. The caving shale and conglomerate at a depth of about 460 feet in the well shown, probably should have been cased off during drilling. The tight spot, or place that was not drilled to gauge between 980 and 990 feet, should be reamed out to prevent tools from sticking while working on the well, or to prevent subsequent bridging by

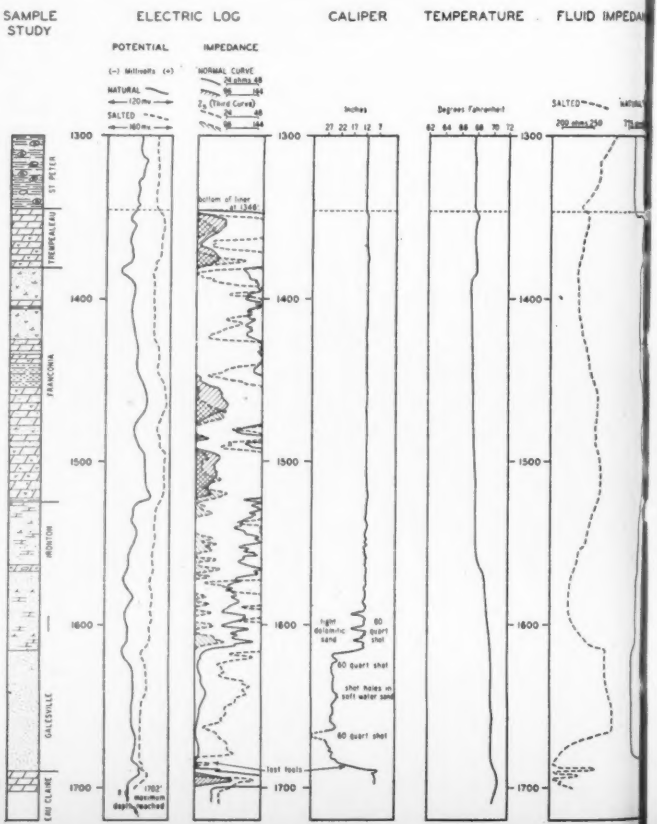


Figure 7—Geophysical logs have been found useful in locating lost "fish" — tools, joints, etc. Knowledge of the character of the well near the objects permits more effective fishing efforts.

caving of materials which would shut off the water sand below.

In addition to the location of casing and liners, it may be important to know the location of lost tools or junk in the hole. The electric log gives good measurements of the casing and liners and in some wells locates the position of drilling tools, joints of old air-lift pipe, and other steel or iron articles that might have been dropped. In the bottom of the well illustrated in Fig. 7 the portion of a string of tools lost while cleaning out after shooting was located by both the electric log and the caliper log. Inasmuch as they were below the shot-hole in the main producing water sand and it is unlikely that the well will ever be deepened, they were not fished out. The shot-holes in this well are also of interest in that they illustrate clearly the differences in the effect of shooting on the water sand and the tight dolomitic sand.

A byproduct of the geophysical well surveys is the location of areas and subsurface zones in which stray electric currents are most intense. These stray currents probably account for much of the corrosion of liners, casing, pumps, and column pipe in wells, especially in industrial districts. Geophysical methods have long been used in the study and remedy of electrolysis and corrosion of pipelines, underground telephone and telegraph cables, and other buried metal objects. It is hoped that as additional data on stray electric currents and their relation to corrosion are collected by geophysical surveys and other methods some practical suggestions can be made toward the solution of these problems in water wells.

Part V of this article will appear in an early issue.

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Vol. 19 March, 1945 No. 3

You Benefit By Sharing Job Photos

Several months ago we reminded you that The DRILLER was *your* publication and asked for your reactions to it. The response was most gratifying and we thank you for your comments. Let us have more of them, won't you?

At that time, too, we mentioned the handicaps under which a publication must work in war time, but little was said about photographs which are so vital to a journal such as this.

The DRILLER editors realize that more photographs of well installations should be obtained but find pictures hard to get especially with the gasoline, film, and manpower shortages. They know, however, that in the last several years you have taken many pictures of great interest to our readers.

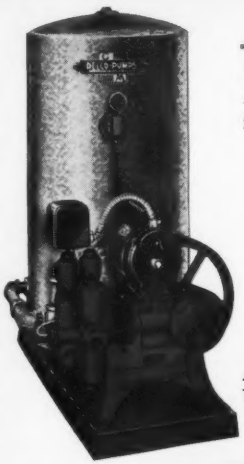
Perhaps in your file are pictures of recent jobs that were unusual, taken at odd angles or with scenic backgrounds, show special attachments you built, or are of particular interest to you. Whatever pictures you have on file are exactly what we are interested in.

We are asking you to share them with the entire industry—to lend them to us so we may publish them. You will get full credit for each picture we feel is suitable for publication. All will be returned carefully and promptly after publication.

By lending us your pictures for publication you will show others how you handle your jobs, and the job pictures they send in will, most likely, offer ideas to you. Also, taking an active part in *your* publication, The DRILLER, will be making a direct contribution to the well drilling industry. Finally, because of the printed pictures, you will have available the kind of publicity that is particularly effective when it becomes necessary to "sell" a prospect on a well.

Incidentally, this can serve as a reminder, also, that right now is not too soon to start your post-war planning by arranging and maintaining a complete set of photos of each well you handle. Pictures of your jobs in this publication, added to your bound photograph file, will be impressive to help sell tough post-war prospects quickly, and can be used for good free local publicity.

Yes, we realize that you are busy, yet many advantages make it very worth while to you to pick out a few of your favorite photographs today and mail them to The DRILLER, South Milwaukee, Wisconsin.



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FROM THE MAILBAG

This page is open to any of our readers having questions to ask relating to drilling, driving pipe, dressing bits, etc. All letters will be answered promptly by experienced drillers and engineers who are qualified to give intelligent advice on these subjects. We will publish as many letters of general interest as space will permit. Address: The Driller, South Milwaukee, Wis.

Sirs:

I would like some information on the use of dry-ice to open perforations which were clogged by flood water settlings.

This well has an eighteen inch casing, and it is 50 feet deep. The formation is sand and coarse gravel.

D. L. Arizona.

Dry ice has been used with some degree of success in cleaning out perforations in well casings clogged by clay or sediment, however, in most cases the job involved a relatively small diameter casing or pipe and we question whether the same effectiveness could be obtained in a well cased with 18" casing.

Conditions surrounding all wells differ such as size, amount of water contained therein, earth formations, etc., therefore, it cannot be said that it will work in all cases. Moreover the amount of dry ice to be used and details relating to its application will differ accordingly, and those things must be determined for each individual well.

When fed into the casing of a well, dry ice reverts to gas as soon as it strikes the water, setting up a surging action or pressure which tends to force the clay or sediment out of the casing perforations and thus clears the casing to allow greater water flow.

If the well had been sealed, the rapid change of the dry ice to gas would have developed a pressure of approximately 4000# to the square inch. Dry ice, unlike ordinary ice, goes to the bottom so that this pressure is formed at the bottom of the well.

There is no set rule for determining the correct amount of dry ice to be used. It may be helpful, however, to remember that one pound of dry ice releases 8.7 cubic feet of gas at 70° F. atmospheric pressure. It is better to use a little too much than not enough, bearing in mind the pressure created does the principal part of the work.

Care, however, should be exercised to see that the pressure developed does not create dangerously high stresses in any part of the well. There is also a certain amount of danger connected with the use of dry ice. The carbon dioxide gas is very suffocating and anyone attempting to use dry ice should first acquaint himself with its action.

Dear Sir:

I have drilled a well 97 feet deep and cased it with 6-inch pipe to the depth of 96 feet. We started out in fine sand for 30 feet then in blue muck till within 3 feet of bottom which was sand. Then we hit blue shale and stopped drilling. We have 45 feet of water in the hole and cannot lower it by bailing. We put in the pump. The water was clear for a few days, now it is pumping blue water. I suppose the blue muck is settling down in the sand and in this territory if we case the water out and go on down in shale we will not get any water till we get salt water. What would be your advice?

E. U. Indiana.

Undoubtedly the blue muck is settling down in the sand. The thing to do is to get some gravel in the sand

(Continued on page 20)

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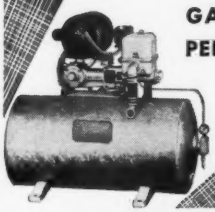

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NEWS OF THE MONTH

Associations Cancel 1945 Conventions

CANCELLATIONS of 1945 conventions in compliance with requests from the Office of Defense Transportation have been announced by several water well drilling associations.

Indiana

Information received from E. H. Merritt of the Indiana Well Drilling Contractors Association stated that its convention, originally scheduled for February 22 and 23, will either be postponed to a later date or will be restricted to an officers' and directors' meeting.

Minnesota

A request to the ODT to hold its convention March 14, 15, and 16 was denied the Minnesota Well Drillers Association. E. H. Renner, secretary, has announced that an officers' and directors' meeting will be held soon to replace the convention.

Iowa

In Iowa, all plans to convene March 14, 15 and 16 have been cancelled, according to H. Landgraf, secretary of the Iowa Well Drillers Association. The membership will be notified of further developments, Landgraf stated.

Illinois

A News-Letter from L. E. Workman, service secretary, has informed members of the Illinois Water Well Drillers Association, Inc., that its convention has been cancelled and that only officers and directors will convene at present. Work on a Sanitary Well Drilling Code, which had been scheduled as a discussion topic at the convention, will continue. Signs to indicate memberships will be offered to members, Workman said.

(Ed. Note: The ODT has banned convention travel to conserve vital war transportation facilities. Some people have felt that an early cessation of the war in Europe might relieve the situation sufficiently so that ODT would approve conventions later in the year. THE DRILLER will continue to keep in close touch with state associations and any developments regarding the possibility of conventions being held at later dates will be reported promptly.)

Officers For 1945 Are Selected By New York Wellmen

THE Annual Meeting of the Empire State Water Well Drillers Association, held in Trinkan's Hotel, Oriskany, N. Y., January 10, elected the following officers: Lee Bates, Rome, President; Viggo Klindt, Morris, Vice-President; Neil A. Crandall, Oriskany, Secretary; William Kincaid, Jr., Canastota, Treasurer; Clarence Crandall, Pine City, Director for three years; Leon Castor, Cleveland, Director for two years.

Featuring the session were C. K. Bullock, Albany, Assistant Secretary of the New York State Emergency Food Commission; John Broughton, Albany, Acting New York State Geologist; J. J. Sugden, Rochester, Federal Agricultural Division, W.M.C.; A. T. Beaner, Norwich, and O. F. Dandy, Canton, Area Representatives of the W.M.C.

The next quarterly meeting of the Association is scheduled for April 11 at Morris, New York.

Milwaukee Drillers Discuss Problems

• This gathering of drillers, pump men and manufacturers' representatives assembled in Milwaukee on January 31 for a meeting of the Milwaukee Chapter of Wisconsin Well Drillers, Inc. Licensing, local well permits, and code problems dominated the discussions.

Four Sons Of Iowa Driller In Service

BEFORE the war, Mr. Knud Bonnicksen of Ringsted, Iowa, conducted his well drilling business with the help of his four sons. Today all of his sons are in service and he is carrying on the business alone, he reports. His son, Chalmer, is a German prisoner, Eldon is in France, Harry in the Marianas Islands, and Donald is at Fort Mead, Maryland.

Water Levels For December Improve

THERE was little change in ground-water conditions for the month of December, 1944, compared with the levels during the fall, the U. S. Geological Survey stated in its recent Review.

Water levels in areas unaffected by pumping showed only slight variations and levels continued low in certain heavily pumped areas of the South Central States. The Dakotas and Kansas showed high water stages due to floods while the Pacific Northwest levels were abnormally low. In general, however, storage reserves increased during the month, the Review indicated.

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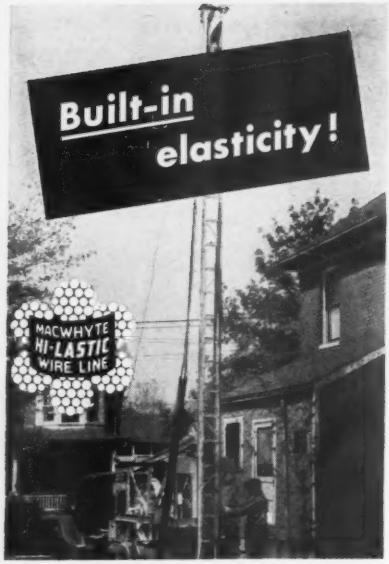

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WIT BITS

The drill sergeant was putting the rookie squad through calisthenics. "Companeeeee, lift up your left leg and hold it straight out in front of you."

By mistake, one soldier held up his right leg, which brought it side by side with his neighbor's left leg.

"Aw right," shouted the sergeant when he noticed this, "who's the wise guy over there holding up both legs?"

Cowboy: "What kind of saddle you want—with a horn or without?"

Dude: "Without. There isn't much traffic around here."

"You've been watching me fish for three hours. Why don't you try it yourself?"

"Ain't got the patience."

Liza: So yo' husbin' done jine de Ahmy? Whut's he doin'?

Mandy: Dey done made him gunnah—jes lak he's always been.

Liza: When's he evah done any gunnin'?

Mandy: Ah means he's always gunnah do dis an' gunnah do dat, an' he's nevah done nothin'.

Lady (holding a cookie above a dog) : "Speak, Fido. Speak?"

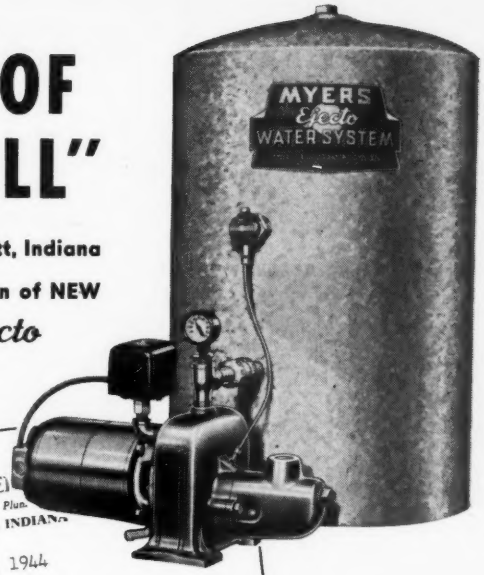
Dog: "What'll I say?"

"I hear you bought a farm. How big is it?"

"I dunno for sure, but the former owners used to send out couples to milk the cows and their grandchildren would bring back the milk."

"BEST OF THEM ALL"

. . . says E. H. Merritt, Indiana Dealer, praising operation of NEW MYERS "H" SERIES *Ejecto*



EARL H. ME
Well Contractor · · Plum
NEW AUGUSTA, INDIANA

Nov. 13, 1944

The F. E. Myers & Bro. Co.
Ashland, Ohio

Gentlemen:

I have just installed a new H 50 AZT Myers Deep Well Jet Pump Complete with 42 Gallon Tank, on a well which has gas in the water, and the new "H" series EJECTO does all that you claim it to do. Of all the Jet pumps I have installed this outfit is the best yet. It is easily installed, one priming does the trick, and it delivers the most quiet even flow I have ever seen from any jet pump.

I have tried two other jet pumps of different manufacture but they would not do this job. I am really taking my hat off to this new "H" Series Ejecto.

Very truly yours,

Earl H. Merritt

EASY TO INSTALL

ONE PRIMING DOES THE TRICK

QUIET EVEN FLOW

HANDLES GAS IN WATER

TAKE OFF YOUR HAT TO **MYERS** PUMPS and WATER SYSTEMS

THE F. E. MYERS & BRO. COMPANY

Dept. C-51, Ashland, Ohio

Gusher . . .

(Continued from page 5)

either; if anything, it's getting stronger. It seems we must have tapped an exceptional water-bearing formation. There are a number of flowing wells nearby, but the water from most of them has a very noticeable sulphur taste in it. There's none of it at all in this well.

"Apparently no other nearby well takes water from the same formation because we haven't heard a single report that a well is dropping down since this one was brought in.

"Wherever the water comes from, it's a cinch that the value of the farm has gone up considerably since the well was successfully capped and the water controlled for use. Before this, though, when the water was flowing wild all over the yard, the owner would have been glad to sell —cheap!"

Other Flowing Wells Recalled

Ben Karrels' unusual flowing well —and he's willing to show it to any one to back up his words—brings to mind a number of other famous flowing wells.

Perhaps as famous as any in this country were the artesian wells of Dakota that were almost like geysers. shooting columns of water 200 feet in the air. A 1923-foot well in Paris, 28 inches in diameter and with an artesian head of 54 feet flowed nearly 3900 gpm. Another at Springfield, North Dakota, had a static pressure of 86 pounds per square inch, yielding 4,750,000 gallons every day and furnishing power for a 100-barrel flour mill. Still another—this one at Woonsocket, South Dakota—had a static pressure of 130 pounds and was discharged into a water wheel which supplied the power for a 125-barrel flour mill (cited in *Ground Water* by C. F. Tolman, McGraw-Hill Publishing Co.: New York, 1937) .—Editor.

Cellar Leak Starts New Water Business

THE prevalence of salt and sulphur in the water sources around Freeland, Michigan, led James F. Graham, former state representative, to have a deep well drilled to replace a well whose supply had dwindled. During the pumping test of the new well, water seeped into a neighbor's leaky basement. The neighbor was impressed with the deep well and considered the water of such high quality that he asked to be supplied from the same well.

The news spread rapidly and before long many more neighbors wanted to "hook on" so that finally it was necessary to hold a meeting at the local bank where Mr. Graham arranged to have a ditching machine install a network of pipes to serve his neighbors.

As water demands increased Jim Graham installed a Deming deep well pump and later on a turbine pump as a team-mate. The combination of the two pumps now average more than 100,000 gallons daily and meet the water needs of 350 families.

The plan to supply water has proved so satisfactory that now Graham intends to drill a well on the other side of Freeland. He charges $2.00 per month up to 3,000 gallons used, but above that the water is metered at an extra charge of 50 cents per 1000 gallons additional while any excess over 7,000 gallons is paid at the rate of 25 cents per 1,000 gallons.

THIS PUMP HAS WON ITS *Service Ribbon, too!*

NEXT to food, nothing on the battlefront is as refreshing as a cup of cool, pure water. Thousands of Peerless Pumps have gone to the battlefronts. Wells are hastily drilled so that our boys will not be exposed to the hazards of bacteria or poisoned water. The simplicity of Peerless Hi-Lift and Turbine Pumps, their compactness, dependability and ease of installation make them first choice on the battlelines. Here at home Peerless Pumps have also won their *Service Ribbons.* Right through wartime they have given unfailing service. Many Peerless Pumps have operated 24 hours daily for years without shutdown, without a penny spent for repairs. In considering your plans for a better water supply, we invite you to share Peerless experience and success.

Capacities ... 10 to 220,000 gallons per minute!

Designers of the famous fighting "Water Buffalo."

PEERLESS PUMPS

PEERLESS PUMP DIVISION
Food Machinery Corporation

TURBINE HI-LIFT HYDRO-FOIL

301 W. Ave. 26, Los Angeles 31, Calif. • 1250 Camden Ave. S.W., Canton 6, Ohio • *Other Factories:* San Jose 5, Fresno 16, Calif.

Coming!
A SKY POWER
MOTORLESS
WATER SYSTEM
Millions of farmers have long awaited a running water system, complete on the farm and low in operating cost. Now comes the realization of that dream with the Monitor motorless water system.
Pressure controls will make the Monitor windmill fully automatic — pumping at night and while the family is away from home. A 1000-gallon tank or concrete storage reservoir will provide a reserve of cool running water.
Don't wait until after the war. You can start your sales campaign today. Install Monitor Sky Power windmills on the farms in your territory. When pressure tanks with Automatic Controls are available they can be attached to windmills you sell now, thus assuring you of a profitable follow-up business.
Now is the time to start getting your share of the sales.
Monitor
SKY POWER WINDMILL WATER SYSTEM
THE Monitor LINE DEEP WELL WATER SYSTEMS • WINDMILLS • HAND PUMPS • PUMP JACKS • ENGINES • WATER WELL SUPPLIES
• BRANCHES •
BAKER MFG. CO.: Minneapolis, Minn.; Madison, Wis.; Fort Dodge, Ia.; Cedar Rapids, Ia.; Omaha, Neb.; Kansas City, Mo.; Enid, Okla.; Hutchinson, Kansas
BAKER MFG. LTD., Winnipeg, Canada
AXTELL CO.: Fort Worth, Tex.; Amarillo, Tex.; Lubbock, Tex.; San Angelo, Tex.
BAKER MANUFACTURING CO., EVANSVILLE, WIS.

Myers Mails 55th Annual Calendar

COMPLETE mailing of their 55th consecutive calendar-poster has been announced by the F. E. Myers & Bro. Co., pump manufacturers, of Ashland, Ohio.

Published in two editions—the complete line and the Pump line—the calendar illustrates items of Myers manufacture and serves as a wall catalog by more than 28,000 dealers throughout the United States and Canada, the manufacturer points out. Additional copies of the Pump edition, fully illustrated, are obtainable directly from the manufacturer.

Joins Institute

FRED W. SCHULZ, treasurer of The New Rochelle Water Co., New Rochelle, New York, has been elected to membership in the Controllers Institute of America according to G. K. Dahl, the Institute's Director of Public Relations.

Mailbag . . .

(Continued from page 12)

formation so that it will be packed around the bottom of the pipe. First put in about a foot of pea gravel. Next lower the drilling tools by churning them up and down, forcing the gravel out of the pipe. Then pull the pipe back 6" and drive in some gravel as long as you can crowd it down. Repeat the operation until you have the pipe pulled back 3'. The pipe should then be put down again in the usual way. There will then be formed around the end of the pipe a pocket of gravel which will prevent the lighter sand from rising and act as a filter.

High sustained efficiency and low maintenance costs are inherent characteristics of Cook Deep Well Turbine Pumps — the *only* Turbines having *all these features!*

1—Easy adjustment of impellers. 2—Pin Clutch Safeguard against damage to motor and line shaft. 3—Oil or water lubrication. 4—Precision tested impellers of Red Brass mathematically designed to give *maximum upward thrust* to water column. 5—Streamlined passage through bowl minimizes friction and turbulence, *delivers greater gallonage at head.*

Many other salient reasons for the swing to Cook Turbine Pumps are shown in Catalog 360-A, free on request . . . Ask for your copy, today.

COOK

DEEP WELL TURBINE PUMPS

Oil or Water Lubricated

A. D. COOK, INC. • Lawrenceburg, Ind.

BARGAIN COUNTER

To the reader who wishes to advertise used equipment in "Bargain Counter Section.

All advertising in this section is payable in advance. Enclose your money order with copy. Rate is 10c per line. Minimum charge $1.20. No discounts; no commissions. Read these instructions carefully. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Count your own copy to save delay. Holding up your advertisement one month to secure approval of revised copy or an additional remittance, may cost you real money in a lost sale. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example—January issue closes December 10th.

To the reader wishing to answer "Bargain Counter" Section advertisements appearing on these pages:

Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of THE DRILLER, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

DRILLS

1 Keystone No. 70 drill rig, in A-1 condition, complete with full string of 6-in. drill tools mounted on 1938 ton and a half Ford truck with a 2 speed rear end. Price on request. Box 31, Salisbury Center, New York.

Keystone 3½ mounted on Chevrolet truck with double reduction rear, all steel frame, cable or rope, with tools. Derrick 32' high. Located in eastern Pennsylvania. Box 0563

WANTED

Wanted — Armstrong No. 35-W or Bucyrus-Erie 21-W or 33-W drill. Machine must be in good condition. Please advise location, equipment included and price. Box 4612

Wanted to Purchase

All steel drilling machine, also bit dressing machine. B. A. Moravec, Penn Yan, N. Y.

WANTED

Used well machine in good condition. Bucyrus-Erie 21-W, 33-W, or Armstrong 35. Please include information on price, equipment included, location of machine. Box 0432

33 or 21-W Bucyrus-Erie or 35 Armstrong with or without tools. Box 0553

One or two all steel drills, with or without tools. Give condition, age, size, lowest cash price. F. N. Hagmann, Jr., Vienna, Virginia.

No. 21W, 22W, 24W Bucyrus, 240 or 70 Star or comparable all steel machine. With or without tools or cable. Truck mounting preferred. Box 0533

HELP WANTED

Experienced water well driller. Salary or by the foot. Steady year 'round work. Write Norman L. Stevens, Wauseon, Ohio.

HELP WANTED

Several well drillers . . . $1.25 per hour. Box 0591

Drillers Wanted

Steady work, shale and some limestone. 75 cents per foot, all steel machines. B. A. Moravec, Penn Yan, N. Y.

DRILLERS

Steady work, draft exempt, priority wells within radius of 25 miles of Milwaukee. Modern steel machines. Box 0543

Experienced driller April 1st —good wages. Steady work for right man. Write full particulars Stewart Bros. Schenectady (2) N. Y.

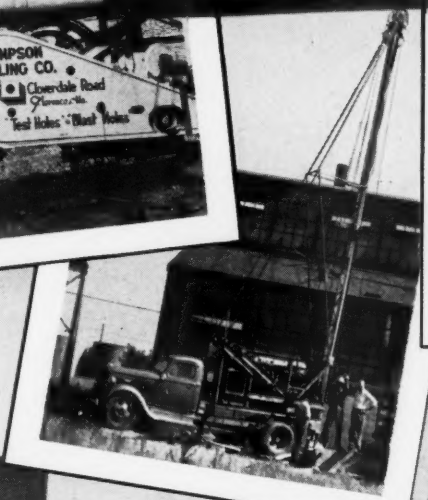
Drillers for Overseas

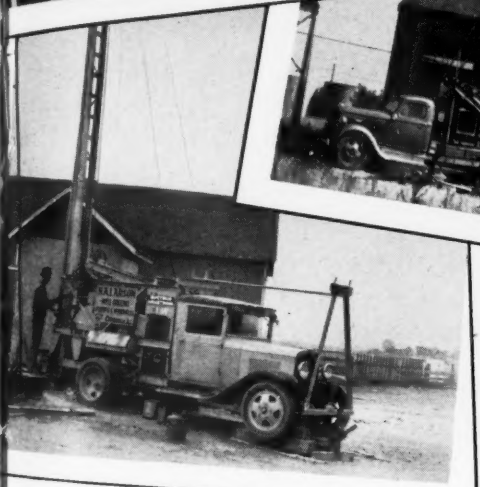
Experienced cable tool operators for New York firm. $2.04 per hr., time-and-half for over 48 hrs. Living Costs $50 per month. Age limit 45. Physical examination and draft board approval required. Box 0442

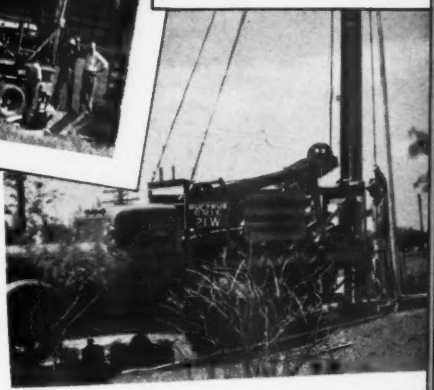
Thaw May Help Ohio

THE thawing weather of middle February may be of benefit in relieving serious Ohio water shortages, a U. S. Geological Survey report states. The drought condition in Ohio has become critical, generally due to heavy water demand by war industries. The city of Columbus exhausted all water storage and has resorted to pumping water from an abandoned quarry and two rivers. In Lima, quarry sources now are the main supply of water for that city.

Memo for Postwar







contractors with modern, proved drilling equipment will go the lion's share of tomorrow's contracts for air conditioning, industrial, municipal, suburban, farm, etc., wells. When all the restrictions of wartime are removed, customers will prefer the driller whose equipment is equal to its jobs.

Plan your future with Bucyrus-Eries. Investigate the features that have made them favorites — fast drilling, exceptional mobility, quick set ups, all around dependability on even the toughest jobs. These features will make Bucyrus-Eries your best choice for profits on tomorrow's wells. J-92C

BUCYRUS-ERIE CO. SOUTH MILWAUKEE, WIS. EVANSVILLE, IND. ENGLEWOOD, N. J.

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